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Remarks

Claims 1, 3-6, 8-10 and 14, 15, and 17-20 are pending in the application.

Claims 1, 3-6, 8-10, 17, and 19-20 are objected to for various informalities.

Claims 1, 3, 6, 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent 6,724,722, hereinafter "Wang").

Claims 4, 9, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Applicants' specification admitted prior art.

Claims 5, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Tyrrell (U.S. patent No. 5,185,736, hereinafter "Tyrrell").

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Dravida.

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Entry of this Amendment is proper under 37 CFR § 1.116 since the amendment: (a) places the application in condition for allowance for the reasons discussed herein; (b) does not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution; (c) satisfies a requirement of form asserted in the previous Office Action; (d) does not present any additional claims without canceling a corresponding number of finally rejected claims; or (e) places the application in better form for appeal, should an appeal be necessary. The amendment is necessary and was not earlier presented because it is made in response to arguments raised in the final rejection. Entry of the amendment is thus respectfully requested.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known

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prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an independent claim has been rewriting to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

Objection to Claims 1, 3-6, 8-10, 17, and 19-20

The Examiner has rejected claims 1, 3-6, 8-10, 17, and 19-20 for various informalities.

With respect to the Examiner's objections to the term "high capacity trunk", Applicants respectfully submit that claims 1 and 6 were amended in Applicants' previous response to distinguish between the first and second high capacity trunks. Applicants believe that the Examiner included this rejection in error. As such, Applicants respectfully request that the objection be withdrawn.

With respect to the Examiner's objection to use of the term "cable station" Applicants respectfully submit that, since claims 4, 9, and 17 are dependent claims which depend from independent claims 1, 6, and 14, respectively, and Applicants' clearly have support in the specification for cable stations having different capabilities, Applicants are entitled to claims covering both embodiments of cable stations. Furthermore, since

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independent claims 1, 6, and 14, from which claims 4, 9, and 17 depend, clearly define the connectivity of Applicants' invention, Applicants respectfully submit that use of the term "cable station" in these dependent claims is clear. As such, Applicants respectfully request that the objection be withdrawn.

Furthermore, Applicants respectfully disagree with the Examiner's assertion that use of the term "cable station" is repugnant to the art. The Applicants merely describe a prior art cable station, and then further describes how the prior art cable station may be modified to provide various advantages of the Applicants' invention. To require a different term for each device each time the device is enhanced would result in an infinite number of terms. Although the Applicants did not choose a new name for the enhanced cable station, Applicants maintain that it is clear from the specification and drawings, as filed, that the cable stations depicted and described with respect to Figures 4, 5, and 7 may provide functionality not supported by cable stations depicted and described with respect to Figures 1 - 3. As such, Applicants respectfully request that the objection be withdrawn.

Rejections Under 35 U.S.C. 103(a)

Claims 1, 3, 6, 8, and 14

Claims 1, 3, 6, 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent 6,724,722, hereinafter "Wang").

In general, Wang teaches management of potential traffic growth, and associated congestion, in an information network. Specifically, Wang teaches that traffic demands from a source node to a destination node are monitored and, for each demand, and for each link of the network, the portion of the bandwidth associated with each traffic demand that is provided by the given link is determined. A maximum value of link utilization among all links of the network is then determined, and the traffic demands are routed across the links of the network in such a manner as to minimize the maximum value of link utilization. (Wang, Abstract).

Wang, however, fails to teach or suggest an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity trunk

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for directly coupling to a type two node wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node, as taught in Applicants' invention of at least claim 1. Specifically, Applicants' claim 1 positively recites:

"A node for grooming low capacity client signals into a high capacity signal, comprising:
an interface to a first high capacity trunk for directly coupling to a type one node; and
an interface to a second high capacity trunk for directly coupling to a type two node;
wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node."

(Emphasis added.)

In the Office Action, the Examiner admits that Wang does not disclose a direct coupling between node F (interpreted by the Examiner as a type 1 node) and node C (interpreted by the Examiner as a type 1 node). Rather, as shown in Wang, node C and node F are indirectly coupled through node D (interpreted by the Examiner as a type 2 node). In other words, as admitted by the Examiner, Wang fails to teach or suggest an interface to a first high capacity trunk for directly coupling to a type one node, as taught in Applicants' invention of at least claim 1.

Since the Wang reference fails to teach or suggest Applicants' limitation, the Examiner then argues that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to delete node D (repeater node) between nodes C & F because the distance between C & F is short enough that the repeater is not required; therefore, C would be directly coupled to F or type 1 node via a first high capacity trunk." (Office Action, Pg. 2, Emphasis added.) Applicants respectfully disagree.

The Examiner concludes that the distance between nodes C and F is short enough that node D (which the Examiner interprets as a repeater) is not required, however, there is simply no teaching or suggestion anywhere in Wang which supports the Examiner's conclusion. The portion of Wang cited by the Examiner merely shows a specific configuration of nodes which results in a routing problem which Wang then attempts to solve. The configuration of nodes taught in Wang is completely independent of the physical locations of the nodes, much less physical distances between the nodes.

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Similarly, the routing problem described in Wang has nothing to do with the physical locations of the nodes or physical distances between nodes. Nodes C and F depicted in Figure 1 of Wang may be located anywhere in the world. This is especially clear from Figure 2 of Wang, which shows various locations within the United States where such nodes may be located. As such, since Wang is completely devoid of any teaching or suggestion of physical locations of nodes or physical distances between nodes, there is simply no basis for the Examiner's conclusion that the distance between nodes C and F of Wang is short enough that a repeater is not required.

Furthermore, Wang is completely devoid of any teaching or suggestion of any signal strength transmission capabilities of any of the nodes depicted and described in Wang. Moreover, the Examiner interprets node D of Wang as being a repeater, however, Wang is completely devoid of any teaching or suggestion that node D (or any other node in Wang for that matter) is a repeater. Wang has absolutely nothing to do with signal strengths, much less using repeaters for regenerating signals in order to sustain the propagation of the signals between nodes separated by large physical distances. Rather, Wang is clearly directed toward location-independent and distance-independent schemes for managing traffic flow. As such, even assuming that Wang did teach physical distances between nodes (which Applicants maintain Wang does not), there would still be no basis for the Examiner's conclusion that the distance between nodes C and F of Wang is short enough that a repeater is not required.

Applicants respectfully request that the Examiner identify the portions of Wang which support the Examiner's conclusion that the distance between node C and node F of Figure 1 of Wang is short enough that node D may be deleted. There is clearly no teaching or suggestion in Wang of any physical distance between nodes, signal strength capabilities, repeaters, or any other teachings on which the Examiner's conclusions seem to be based. Furthermore, even if Wang did teach such features (which Applicants maintain Wang does not), the Examiner's conclusion that node D may be deleted would still be incorrect. Figure 1 of Wang is clearly used to demonstrate a problem associated with routing in a network having the depicted configuration of nodes. Removal of node D from Figure 1 of Wang would modify the configuration of nodes, thereby eliminating

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the problem which the invention of Wang is attempting to solve. As such, Wang actually teaches away from the removal of node D of Figure 1.

As such, for at least the reasons discussed hereinabove, there is no basis for the Examiner's conclusion that the distance between nodes C and F of Wang is short enough that a repeater is not required. Therefore, since there is no basis for the Examiner's conclusion that the distance between nodes C and F of Wang is short enough that a repeater is not required, there is absolutely no basis for the Examiner's conclusion that it would have been obvious to delete node D between nodes C and F because the distance between nodes C and F of Wang is short enough that a repeater is not required. Applicants respectfully submit that the Examiner has impermissibly expanded upon the scope of the teachings of Wang. As such, Wang fails to teach or suggest Applicants' invention, as a whole.

Furthermore, as shown in at least Applicants' previous response, a node having a first interface to a first trunk for directly coupling to a first type two node and a second interface to a second trunk for directly coupling to a second type two node, as taught in Wang, is not a node having an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, as taught in Applicants' invention of at least claim 1. Furthermore, since there is no teaching or suggestion in Wang of any direct connection between node C and node F, and the Examiner has interpreted node F as a type one node, Wang is completely devoid of any teaching or suggestion of an interface to a first high capacity trunk for directly coupling to a type one node, as taught in Applicants' invention of at least claim 1. Accordingly, Wang fails to teach or suggest Applicants' invention, as a whole.

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). The Wang reference fails to teach or suggest Applicants' invention, as a whole.

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Since all of the dependent claims that depend from the currently independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Wang.

Therefore, Applicants' claims 1, 3, 6, 8, and 14 are allowable over Wang. under 35 U.S.C. 103(a).

Claims 4, 9, 17, and 18

Claims 4, 9, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Applicants' specification admitted prior art.

As discussed above, the Wang reference fails to teach or suggest Applicants' invention of claims 1, 6, and 14. Namely, Wang fails to teach or suggest an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node as taught in Applicants' invention of at least claim 1. As such, Wang fails to teach or suggest Applicants' invention, as a whole.

Furthermore, Applicants' specification admitted prior art fails to bridge the substantial gap between the Wang reference and Applicants' invention. The Applicants' specification merely states that a central office may pass traffic and that a cable station may split traffic. As such, the Wang reference and Applicants' specification admitted prior art, alone or in combination, fail to teach or suggest Applicants' invention as a whole.

Each ground of rejection applies only to dependent claims, and each is predicated on the validity of the rejection under 35 U.S.C. 103 given Wang. Since the rejection under 35 U.S.C. 103 given Wang has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that Applicants' specification admitted prior art supplies that which is missing from Wang to render the independent claims obvious, these grounds of rejection cannot be maintained..

Therefore, Applicants' claims 4, 9, 17, and 18 are allowable over Wang in view of Applicants' specification admitted prior art under 35 U.S.C. 103(a).

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Claims 5, 10 and 15

Claims 5, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Tyrrell (U.S. patent No. 5,185,736, hereinafter "Tyrrell").

As discussed above, the Wang reference fails to teach or suggest Applicants' invention of claims 1, 6, and 14. Namely, Wang fails to teach or suggest an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node as taught in Applicants' invention of at least claim 1. As such, Wang fails to teach or suggest Applicants' invention, as a whole. Furthermore, the Tyrrell reference fails to bridge the substantial gap between the Wang reference and Applicants' invention.

In general, Tyrrell teaches a synchronous optical transmission system for interfacing SONET formatted channels to lower speed channels in either SONET format or otherwise. (Tyrrell, Abstract). In particular, the system includes terminal multiplexers and add-drop multiplexers for terminating lower speed channels, adding low speed channels to a high speed SONET channel, and to interface high speed SONET channels to other high speed SONET channels. (Tyrrell, Col. 1, Lines 15-20).

Tyrrell, however, fails to teach or suggest each and every element of Applicants' invention of at least claim 1. Namely, Tyrrell fails to teach or suggest each of the limitations of "an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity trunk for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node," as taught in Applicants' invention of at least claim 1.

In the Office Action, the Examiner asserts that Tyrrell teaches that an "ADM or node inherently has an interface to a high speed capacity trunk called an east connection or type 2 node and also inherently has an interface to a high speed capacity trunk called a west connection or type 1 node." (Office Action, Pg. 2). The Applicants respectfully disagree.

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As taught in Tyrrell, however, east and west connections do not denote different node types such that an east connection constitutes an interface to a type one node and a west interface constitutes an interface to a type two node. Rather, the east and west connections taught in Tyrrell merely denote direction of transmission and have no bearing on the type of node to which the east and west interfaces are connected. In other words, the interface from the ADM to another ADM on an east connection denotes a direction of transmission from the ADM to another ADM. Similarly, the interface from the ADM to another ADM on the west connection denotes a direction of transmission from the ADM to another ADM.

Tyrrell is completely devoid of any teaching or suggestion that the east and west connections are interfaces for coupling to different node types. The only type of nodes taught in Tyrrell are ADMs, and if the ADMs are assumed to be type one nodes then Tyrrell is devoid of any teaching or suggestion of type two nodes. As such, the east and west interfaces from an ADM both constitute interfaces to a type one node (or, alternatively, a type two node). A pair of interfaces for coupling to respective type one nodes which happen to be located in different directions of transmission from the ADM, as taught in Tyrrell, is not an interface for coupling to a type one node and an interface for coupling to a type two node, as taught in Applicants' invention of at least claim 1.

Furthermore, Applicants' invention of at least claim 1 teaches "wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node." As admitted by the Examiner, however, Tyrrell is completely devoid of any teaching or suggestion of " wherein only a portion of those low capacity client signals destined for the type one node are groomed into the high capacity trunk to the type two node." As such, Wang and Tyrrell, alone or in combination, fail to teach or suggest Applicants' invention, as a whole.

Each ground of rejection applies only to dependent claims, and each is predicated on the validity of the rejection under 35 U.S.C. 103 given Wang. Since the rejection under 35 U.S.C. 103 given Wang has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that Tyrrell supplies that which is missing from Wang to render the independent claims obvious, these grounds of rejection cannot be maintained..

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Therefore, Applicants' claims 5, 10 and 15 are allowable over Wang in view of Tyrrell under 35 U.S.C. 103(a).

Claims 19 and 20

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Dravida.

As discussed above, the Wang reference fails to teach or suggest Applicants' invention of claim 1. Namely, Wang fails to teach or suggest an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node as taught in Applicants' invention of at least claim 1. As such, Wang fails to teach or suggest Applicants' invention, as a whole.

Furthermore, the Dravida reference fails to bridge the substantial gap between the Wang reference and Applicants' invention. Namely, the Dravida reference fails to teach or suggest at least the limitations of "an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node," as taught in Applicants' invention of at least claim 1.

Rather, Dravida teaches a connection control scheme for connectionless networks. As taught in Dravida, congestion is monitored locally and thresholds are defined in order to declare the onset and abatement of congestion. As taught in Dravida, since the control actions are taken in a completely distributed manner, based on local measurements only, no signaling messages need to be exchanged. Rather, however, fails to teach or suggest at least the limitations of "an interface to a first high capacity trunk for directly coupling to a type one node and an interface to a second high capacity for directly coupling to a type two node, wherein only a portion of those low capacity client signals destined for the type one node are groomed into the second high capacity trunk to the type two node," as taught in Applicants' invention of at least claim 1. As such, Wang and Dravida, alone or in combination, fail to teach or suggest Applicants' invention, as a whole.

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Each ground of rejection applies only to dependent claims, and each is predicated on the validity of the rejection under 35 U.S.C. 103 given Wang. Since the rejection under 35 U.S.C. 103 given Wang has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that Dravida supplies that which is missing from Wang to render the independent claims obvious, these grounds of rejection cannot be maintained..

Therefore, Applicants' claims 19 and 20 are allowable over Wang in view of Dravida. under 35 U.S.C. 103(a).

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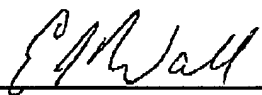
Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, the Examiner is invited to call Eamon Wall at (732) 530-9404 so that arrangements may be made to discuss and resolve any such issues.

Respectfully submitted,

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